

Application Number: 10/611,842  
Filed: 07.01.2003

Office Action Date: 02.01.2007  
Amendment Date: 4/26/2007

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### REMARKS/ARGUMENTS

Subsequent to the Office Action issued on 02/01/2007, claims 1, 3-7 and 9-14 are pending in the application. By this Reply to the Office Action, claims 9-12, and 14 have been amended. Claim 7 has been canceled. Reconsideration of claims 1, 3-6 and 9-14 is respectfully requested.

### Double Patenting

The Office Action provisionally rejected claims 7, 9-12 and 14 of this application under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of co-pending U.S. Patent Application No. 11/069,173. It was stated that the claims were not patentably distinct from each other because they only differ in terminology used. Applicants respectfully traverse this rejection.

Under the law, an obviousness-typed double patenting analysis entails two steps, wherein the claim in the later patent is overlaid on the earlier patent to determine whether the later claim encompasses subject matter previously claimed, and whether the differences in subject matter between the two claims render the claims patentably distinct. (*See, Eli Lilly & Co. v Barr Labs., Inc.*, 251 F.3d 955, 58 USPQ2d 1865, 1878 (Fed. Cir. 2001); and *Georgia-Pacific Corp. v. U.S. Gypsum Co.*, 195 F.3d 1322, 1327, 52 USPQ2d 1590, 1595 (Fed. Cir. 1999), *cert denied*.)

Applicants respectfully request withdrawal of this rejection, asserting that the claims are patentably distinct, and asserting that the subject matter of the claims of the instant invention is not encompassed in the claims of the prior invention of U.S. Patent Application No. 11/069,173. Allowed, independent claim 5 (obtained from Public PAIR) of the prior invention sets forth an apparatus adapted for noncircular bending of a tube, comprising, *inter alia*, a bending element including a bending die having a tube engaging surface, wherein the surface presents a longitudinal cross section having a noncircular circumferential profile, said profile defining an involute of a circle.

In contradistinction, newly amended claim 9 of the instant invention sets forth a draw die for tube bending, the die having a bending surface configuration comprising a

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curve extending between first and second ends, wherein a portion of the curve being a circular arc; and a clothoid transition portion extending from the second end toward the circular arc having a radius of curvature decreasing from zero curvature to a radius of curvature of the circular arc at a point of integration; and, including a second transition portion extending from the arc portion toward the first end having a curvature decreasing from the bending radius of the arc to the zero curvature.

Applicants respectfully assert that claim 9 of the instant invention is patentably distinguishable from claim 5 of the prior invention because the prior invention fails to claim any limitation that a portion of the curve is a circular arc, as claimed in claim 9. Applicants fail to find in any of the allowed claims 5-13, 18, and 21 of the prior invention any limitation that a portion of the curve is a circular arc. Thus, the subject matter of at least claim 9 of the instant invention is not encompassed in the claims of the prior invention of U.S. Patent Application No. 11/069,173. Therefore, the instant invention is patentably distinguishable and allowable over the prior invention.

#### Claim Rejections – 35 U.S.C. § 103(a)

Claims 1, 3-6 and 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Eberle* '212 in view of *Geis* '304. It was stated that *Eberle* '212 discloses a chain-turning system having most of the claimed elements including a u-shaped tube (30) having a curve with a portion being a circular arc (B.11) and a clothoid transition portions (UK.11, UK.12) extending toward the circular arc. *Geis* '304 was relied upon to teach a device like that of *Eberle* which disclosed that it is known to provide a single drive sprocket with guides having first and second ends, and that it would have been obvious to one skilled in the art to have manufactured the guard of *Eberle* so it does not run the length of the chain.

Claim 1 sets forth a bent tube having a bend configuration comprising a curve extending between first and second ends, a portion of the curve being a circular arc; and a clothoid transition portion extending from the second end toward the circular arc having a radius of curvature decreasing from zero curvature to a radius of curvature of the circular arc at a point of integration.

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Applicants respectfully assert that claim 1 is patentably distinguishable over *Eberle* '212 in view of *Geis* '304 under 35 U.S.C. § 103(a) because neither *Eberle* '212 nor *Geis* '304 teach or describe all the elements of claim 1, and therefore fail to anticipate claim 1. Specifically, neither *Eberle* '212 nor *Geis* '304 suggests or describes a bent tube having a bend configuration comprising a curve extending between first and second ends wherein a portion of the curve is a circular arc and a clothoid transition portion, as described in the instant invention. The instant invention addresses issues of concern for tubular deformation, including folds and oscillations on the bent portion of the tube, formation of localized stresses, and removal of a mandrel. (See invention, para 0003, 0006, 0020). These issues are neither described in detail nor highlighted by the cited art. Therefore, claim 1 is patentably distinguishable and allowable.

Claims 3-6 and 13 are all ultimately dependent upon now allowable claim 1 with further restriction, and are therefore allowable for at least the same reasons as set forth.

#### Allowable Subject Matter

It was stated that claim 9 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The acknowledgement of patentable subject matter is noted with appreciation.

Claim 9 has been amended, per the above. Claim 7 has been canceled, in order to place the application in condition for allowance and not for reasons of patentability.

Claims 10-12 and 14 have been amended to be dependent upon now allowable claim 9. Applicant asserts that claims 10-12 and 14 are allowable for the same reasons as set forth with regard to claim 9.

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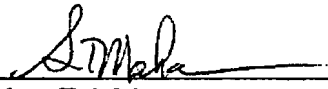
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**Conclusion**

Based upon all of the above, it is respectfully submitted that pending claims 1, 3-6 and 9-14 are in condition for allowance and that same be allowed to proceed to issue. If the Examiner has any questions regarding the contents of the present response, Applicants' attorney may be contacted at the phone number appearing below during normal business hours.

Respectfully submitted,

  
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Stephen T. Mahan  
Registration No. 56,565  
Telephone: (248) 676-9095